ABSTRACT

According to the invention, a method and apparatus are disclosed for dynamically assigning a public network address for a private network host in response to a request generated external to the private network. A requesting host desiring access to a host with the private network queries a domain name server for the public network address of the private network host. Then, the domain name sever queries a network address translator of the private network, and receives a reply indicating a dynamically allocated public network address for the specified private network host. The requesting host can then use this returned public network address for communicating with the private network host. In this manner, a set of public addresses can be shared, with a public network address being dynamically allocated to a private network host in response to a request for access by a host external to the private network. Moreover, a public network address is assigned to a private network host for a limited period of time. This time period can be specified as a period of network inactivity related to the public network address, or a specified time duration (e.g., for one hour, from 3:00 PM to 5:00 PM). The aging of these assigned public addresses is processed by the domain name server itself, or by the network address translator which sends a message to the domain name server when an assigned public address is no longer valid for a particular private network host.